

IN THE CLAIMS:

Claims 1-8 (cancelled).

Claim 9 (Original): A system for controlling exposure dose in a lithographic exposure tool comprising:

means for adjusting said exposure dose as a function of resist sensitivity changes, further comprising;

a) means for calculating a batch factor by using historical data comprising batch factors and optimum exposure doses from at least one lot run previous to a current lot run;

b) said means for adjusting said exposure dose comprises calculating a value of said exposure dose based on said calculated batch factor whereby said exposure dose in said lithographic exposure tool is controlled.

Claim 10 (Original): The system for controlling exposure dose as claimed in Claim 9, wherein said means for adjusting said exposure dose further comprises using said optimum exposure doses from said historical data.

Claim 11 (Original): The system for controlling exposure dose as claimed in Claim 9, wherein:

said resist sensitivity changes correspond to a step function from an old resist sensitivity to a new resist sensitivity; and,

said means for calculating said batch factor further comprises calculating a batch factor of 1 for all lots run subsequent to said step function.

Claim 12 (Original): The system for controlling exposure dose as claimed in Claim 9, further comprising:

- a.) means for obtaining said calculated batch factor for a lot run prior to an initial of said resist sensitivity changes;
- b.) means for obtaining said calculated batch factor for a most recent lot run;
- c.) means for calculating a previous lot run mixing factor for modeling said resist sensitivity changes of said previous lot due to flow characteristics of said resist;
- d.) means for calculating a next lot run mixing factor for modeling said resist sensitivity changes of said next lot due to said flow characteristics of said resist;
- e.) means for calculating said calculated batch factor for a new lot, wherein said calculating means uses the calculated batch factors of step a.) and step b.), and the mixing factors of step c.) and step d.);
- f.) means for calculating said value of said exposure dose based on said historical data and said calculated batch factor for said new lot.

Claim 13 (Original): The system for controlling exposure dose as claimed in Claim 9, wherein:

a means for applying an aging factor to compensate for an ambient temperature of said resist is applied to said calculated batch factor to increase accuracy of said calculated batch factor;

said means for applying said aging factor to compensate for said ambient temperature of said resist is applied to said value of said exposure dose to increase accuracy of said calculating said exposure dose value.

Claim 14 (Original): A computer program product comprising:

a computer usable medium having computer readable program code embodied therein for controlling exposure dose in a lithographic exposure tool, the computer readable program code in said computer program product comprising:

- a.) first computer readable program code for causing the computer to calculate a batch factor by using historical data comprising batch factors and optimum exposure doses from at least one lot run previous to a current lot run;
- b.) second computer readable program code for causing the computer to adjust said exposure dose wherein said adjustment comprises calculating a value of said exposure dose based on said calculated batch factor whereby said exposure dose in said lithographic exposure tool is controlled.

Claim 15 (Original): The computer program product for controlling exposure dose as claimed in Claim 14, wherein said second computer readable program code further comprises third computer readable program code for causing the computer to use said optimum exposure doses from said historical data.

Claim 16 (Original): The computer program product for controlling exposure dose as claimed in Claim 14, wherein said resist sensitivity changes correspond to a step function from an old resist sensitivity to a new resist sensitivity; and,

said first computer readable program code for causing the computer to calculate a batch factor further comprises fourth computer readable program code for causing the computer to calculate a batch factor of 1 for all lots run subsequent to said step function.

Claim 17 (Original): The computer program product for controlling exposure dose as claimed in Claim 14, further comprising fifth computer readable program code for causing the computer to:

- a.) obtain said calculated batch factor for a lot run prior to an initial of said resist sensitivity changes;

- b.) obtain said calculated batch factor for a most recent lot run;
- c.) calculate a previous lot run mixing factor for modeling said resist sensitivity changes of said previous lot due to flow characteristics of said resist;
- d.) calculate a next lot run mixing factor for modeling said resist sensitivity changes of said next lot due to said flow characteristics of said resist;
- e.) calculate said calculated batch factor for a new lot, wherein said calculation uses the calculated batch factors of step a.) and step b.), and the mixing factors of step c.) and step d.);
- f.) calculate said value of said exposure dose based on said historical data and said calculated batch factor for said new lot.

Claim 18 (Original): The computer program product for controlling exposure dose as claimed in Claim 14, further comprising sixth computer readable program code for causing the computer to:

apply an aging factor to compensate for an ambient temperature of said resist to said calculated batch factor wherein increased accuracy of said calculated batch factor is achieved;

apply said aging factor to compensate for said ambient temperature of said resist to said value of said exposure dose to increase accuracy of said exposure dose value.

Claim 19 (Original): A system for controlling a process parameter value comprising:

means for adjusting said process parameter value as a function of material property changes, further comprising;

a.) means for calculating a batch factor by using historical data comprising batch factors and an optimum of said process parameter value from at least one lot run previous to a current lot run;

said means for adjusting said process parameter value comprises calculating said process parameter value based on said calculated batch factor whereby said process parameter value is controlled.